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ABSTRACT

Program evaluation methodology as an investigatory strategy has been developed to generate information as to the capabilities of human service programs to produce maximal desired effects in client populations with minimal resource use. Experience with the procedures, however, has disclosed multiple difficulties attendant upon their use, doubt as to the validity of the information which they generate, and a legitimate questioning as to the impact which such findings have upon upgrading human services. An alternative strategy for program testing has been in established use in industrial, agricultural and medical contexts, where the lesson has already been learned not to install a program first, and then mount an evaluation effort to see whether what has been built proves to have any merit. The utilization of such a Research and Development (R&D) strategy calls for a sharp separation of the processes of program development from program operations in the world-of-use. Some major differences between the two strategies are enumerated. It is argued that continued pursuit of contemporary procedures for program evaluation will not only prove excessively costly in the long-run, but will also be unlikely to produce operational services and systems with the high effect/low cost characteristics which are sought, and that a shift in the field of human service program development should be made toward an R&D strategy instead. (Author/RC)

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The R&D Strategy as an Alternative to Program Evaluation Methodology

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Program evaluation methodologies are a family of investigatory strategies which have been developed in recent years in response to the need for procedures for generating reliable information as to the capabilities of human service programs. Human service programs in general, and corrections programs in particular, are intended to generate a variety of beneficial effects in the clientele for whom they are designed. Evaluative data is needed to appraise the extent to which such programs are capable of producing those effects in reliable fashion, and to detail what is required in order to produce them. The procedures are intended to be used in iterative fashion, so that by a succession of attempts such programs can be moved over time in the direction of hi-effect, lo-cost service systems.

Experience with this family of procedures as they have evolved to date, however, has disclosed multiple difficulties attendant upon their use, doubt as to the validity of the information which they generate, and a legitimate questioning as to the impact which the findings, have upon the upgrading and improvement of human service programs. Indeed, it has become customary of late to enumerate the many problems with which program evaluations have come to be plagued, and these are often accompanied with warnings to the effect that the entire effort will become discredited and the support of human service programs in the future endangered, if these do not become corrected.

Diagnoses as to the nature of the difficulties are highly varied, and correspondingly suggestions for remedy are equally varied as well. An inspection of the current literature in human service program evaluation will serve to reveal that heterogeneity.

However, a number of critics of our contemporary procedures identify the fault as residing within the processes of program development and evaluation which have come to be followed in the human service sector. It is their contention that the manner in which we have attempted to design, develop, test and operate innovative processes and programs is not one destined to be particularly productive or successful in producing the kinds of client-programs which people need and want. They note that alternative strategies are available to those we currently employ. Foremost among these is the innovative process for program development and implementation which has been in established use in industrial, agricultural military, and medical contexts. The differences between what that process can generate in the way of results versus those which we currently pursue in the human services area can be illustrated at the level of concrete service delivery, viz. the human service agency.

We can begin with an hypothetic director of some human service program - which kind doesn't really matter. He or she might be the director of a Mental Health Center, head of a Probation Department, or someone in charge of a Children's Services Agency. Let us suppose that our director is interested in upgrading and improving the operation of his program or services in a variety of ways. He needs to introduce some innovations into his service system.

It occurs to him that something needs to be done about the secretarial support system that serves his professional staff, since it turns out that it is inevitably lagging behind in report preparation, and incapable of keeping abreast of the work of the staff, despite a stable of hi-speed typists. He needs greater productivity, by means of an alternative set

of procedures, but at no appreciable increase in costs. Conversion of a segment of his secretarial system to a mag-card unit seems a possible solution.

Contact with a technical representative of a specialty firm can put him in a position to decide whether or not the installation of such a unit could be expected to upgrade the delivery capability of his agency; he can make such decisions because he is provided with an information base for that purpose. The specialists with whom he consults can inform him in advance of the space requirements for such a unit, the nature of its performance capability, or its durability, the personnel competencies which are needed, its costs with regard to installation, maintenance, and operation, and a way of estimating cost-savings. He is in a position to make a go/no-go decision. If he makes the decision to proceed, technical representation will then provide: equipment in place, manuals for its operation and procedures for its use, specifications for its management and security, a record system for data collection and analysis so that the agency director can audit the performance of the unit along with the cost of its operation, a training package for technicians, supervised trial operations by trainees up to a floor specification, a set of procedures in order to forestall and correct for the degradation of the service system over time, availability of continuing technical assistance, monitoring, and repair, and a contractual agreement specifying what will be provided. Our service manager may not have a detailed understanding of how all of this could have come about; but he does know that whatever the process was, he and his agency are equipped with all of the means needed to activate the new technology into his service agency and make it productive. He also knows that he and his secretaries could not have designed, developed,

and tested such a process themselves, even with a federal grant intended to promote the introduction of innovative programs and procedures into an agency such as he has. Finally, he knows that having been spared such a task of innovating a new technology, he and his staff can focus upon their principal mission, which is that of providing services to their clientele.

Suppose he now turns to his service programs themselves. He knows that technical improvements need to be introduced here as well. There are alcoholic patients with whom current services do not succeed, or adjudicated delinquents whose needs appear to bewilder his staff, or abusive parents for whom no services are currently being performed. How is our director to proceed in these instances? If he does not already know, he very quickly discovers that the situation here is very different. He will learn of multiple alternative programs from other agency directors, from a perusal of the program literature, or from conversations with consultants of one sort or another, but it will be difficult for him to choose from among them because he will have no clear idea what the technical capabilities of most of these programs actually are. The programs and procedures which he inspects and from which he may endeavor to choose are in a comparatively crude stage of development, and the way in which their development has been attempted has not been such as to generate the kinds of information he needs to have in order to make an effective decision. He will have no clear fix on what kinds of personnel are required to implement them, no adequate documentation as to just what the procedures can do in terms of their range of applicability, their success/failure ratios, or indications with respect to deleterious side-effects, no clear idea of costs, no way to monitor the implementation, no ready mechanisms by which to effect year-end cost and performance accounting, and on and on it goes.

With a few of the programs he will discover that some evaluative testing will have been done. But, the information generated by such evaluative studies will upon close inspection prove to be extremely scant, stemming from the innumerable compromises which the evaluators were forced to make as to the variety of information they could collect, and the procedures they could employ in order to collect it.

And yet circumstances call for a selection to be made, and thus our service director will be led to making some sort of choice on other than solid informational grounds: he may choose whichever program-sequences appear to be consistent with his own ideological persuasion, or which are acceptable to his staff; he may respond to the rhetoric of some program-advocates as opposed to others; he may select in terms of current popularity or professional consensus; or he can set aside time, money, and personnel from the day-to-day task of providing for clients in need, in order to conceive, design, develop, implement, and seek to evaluate a program of their own, and applying for grant support for the purpose. Although there appears to be a certain amount of prestige associated with being awarded such a grant since to many it looks like an endorsement of the worth of an agency and seems to add resources to that portion of the service sector, at the same time it will prove to be a mixed blessing at best and a serious disruption of the program of services of his agency at worst; and the evaluation component which is included, sufficient perhaps to produce a grant award, will prove no more adequate in generating hard inforamtion of a comprehensive and detailed sort than those evaluative studies he had earlier reviewed.

How is it that we have such a marked constrast between what our service manager can do in the way of upgrading and improving procedures in one sphere as opposed to the other? A quick answer might be that he is dealing with very different sets of things - devices and machines on the one hand, and people endeavoring to help other people on the other; or one might observe that efforts to introduce technical sophistication into human service programs is a relatively recent development and we are still in the process of learning how best to do it. But, answers which say that the task is harder, or that we have been at it a much shorter time, serve to divert one's attention away from a very important factor - and that is that the process by which technical innovations become developed, tested and subsequently utilized in one arena is so very different from the process which we have become accustomed to following in the other. Following different processes, one can anticipate different outcomes.

The term innovation, as it is used in the fields of engineering, agriculture or in medical technology, refers to the sequence of steps by which knowledge and technique become transformed and combined into an action-sequence capable of generating effects deemed to be of utility to people. It is a procedural sequence which itself has undergone development, testing, and refinement over a lengthy period of time. It has become widely used because of its capability for generating outcomes which people need and want, and to produce those effects with higher probability of success, less waste of resources and fewer chances of error, than alternative strategies which might be pursued instead.

There are a variety of ways in which the complex innovation process can be represented. A short-hand way of explicating the process is represented in the accompanying figure, which endeavors to lay out in

sequential order the functions which need to be performed in order to pursue the process. Each step in the process can, of course, be broken down into finer incremental steps, and a detailed representation of the process would proceed to do so. However, the figure is intended to provide the major phases which are entailed, whether one is concerned with the design and development of an innovative device, a product, a program of action, or an entire orgnaization or system. Included in the figure are decisional stages, indicating that the principal purpose of each function is to provide the necessary informational base in order to permit one to determine whether to proceed, and upon which to base the activities of the following step. The activities which go on at each step of the way are governed by the decisions which need to be made, and these decisions in turn define the information which is required, and hence the information which must be generated. By adherence to such a time-related sequence, technical innovation becomes the product of a deliberate and controlled process.

Critical to the process is a sharp separation between the business of program (or product) design and testing on the one hand, and the operation of that program or service in the world-of-use on the other.

Research and development is a high-risk venture, the risk being that considerable resources will come to be expended only to have the enterprise fail - a device, a process, or a program which emerges has a comparatively high probability of proving only minimally effective, excessively costly, impractical of implementation, unacceptable to users, and the like. It constitutes a gamble, one which few ongoing service programs can afford to pursue. Few operating agencies have adequate resources as they are to implement their missions; it can be argued that it is poor management to allocate already insufficient resources to commit to high risk ventures.

Moreover, it is poor policy to proceed to install and operate a service program prior to one's knowledge as to its costs and capabilities, since once it becomes frozen in mortar and stone, once people are hired and jobs are at stake, once fiscal, personal and procedural commitments become made, it will prove to be very difficult and costly to get it out again, regardless of the feedback information one generates concerning what it is that it can and cannot do.

In addition, the problem of trying to operate and test, so that one can revise and retest, an ongoing service program or system is a bit like trying to effect the redesign of a locomotive while it is steaming across the countryside. Ongoing human service systems are necessarily in a constant state of flux, responding as they must to changes in community conditions, client flow, personnel turnover, and the like, and this introduces modifications in program and procedure above and beyond those dictated by design and development needs.

Productive products and services cannot be expected without careful attention to the design and testing phase. Because of the many things which must be done in order to ensure that maximal yield has been extracted prior to a decision concerning its costs and effects, it proves to be a multi-year undertaking, and correspondingly requires multi-year funding. Without adequate and continuing support there is too much likelihood of failure; it certainly cannot be sustained on the basis of the feast-and-famine process of year-to-year individual grants.

Although tests of many sorts take place at many junctures throughout the entire process, the critical sets of tests in regard to the product or program are tied to the process of design, not to the operational phase. This is because maximal flexibility with respect to redesign is

necessary. The testing of components and procedures may signal the need for changes, and changes may be indicated which require rapid and sometimes profound alterations in the materials which are used, the order in which procedures are followed, and the like. Operating services cannot function effectively under conditions of day-to-day change; when program changes become introduced they must be carefully delineated and planned and earn the endorsement of participants. Thus, an operational service system inevitably responds to the necessity for change much more slowly. To tie testing procedures to the operational phase as we have been doing in the human services sector is to become enmeshed in a network of compromises and accomodations to service delivery needs, which will invariably combine to defeat one's purposes.

The capabilities necessary for effective research and development are very different from those required to manage and implement the products or programs once they have been developed. Just as the person who drives an automobile does not require the same capabilities as the automotive engineer who designs and builds the vehicle, the knowledge and skill required for the effective delivery of service to clients in need, and the management and operation of those services in an ongoing agency, are of a very different calibre than those required for research and design. Characteristically, in their training and backgrcund, their interests and preferences, and hence their technical capabilities, the two types of people differ. In research and development one needs access to design and evaluation technology, which is a body of documented information and skills, residing in specially trained personnel whose principal commitment is to carry out such development programs. Research and development

cannot be effectively carried out on a part-time basis by personnel whose primary training and commitment is to operating a system, administering and managing it, and engaged in the delivery of direct service. The captain of a ship is not asked to be its architect and builder, although he can and often does contribute to the process.

And thus, part of the decision to proceed with a research and development phase involves an appraisal of one's capabilities for executing the R&D phase. Characteristically, one needs an appropriate combination of facilities, sustained funding, and personnel to carry out an effective R&D effort, and the ability to expend a fair amount of money with no necessary guarantee of success. The necessary skills which need to be coalesced result in multi-professional teams. As a result, in fields such as agriculture, in medicine, or in engineering, only a small proportion of installations have the capabilities to engage in research and development. The typical farm is directed toward the production of foods and fibres, the typical industry toward goods and services, the typical medical facility toward the delivery of health care. Hi-risk, hi-cost R&D activity goes on in only a small proportion of installations (such as Agriculture Experiment Stations, research hospitals, or in development laborabories in a few industries) where the necessary facilities, personnel, equipment and resources have been concentrated for that purpose.

Many more distinctions could be elaborated. Perhaps these are sufficient to indicate that the process of human service program development and evaluation has proceeded very differently. Why is unclear, although a social historian might explicate the reasons why such a different route has been followed than has been the case with most other efforts at innovation.

Development of hi-effect lo-cost human service programs is something which will not come about by chance; we must alter our manner of proceeding and begin to follow deliberate planful procedures to ensure that our program services move in the direction of producing what is wanted. Complex human service programs cannot be expected to successfully emerge if we continue to evolve them in haphazard fashion without adequate attention to their initial design. We must acquire the practise of conducting careful feasibility studies before we elect to proceed; we must organize ourselves so as to carry out effective R&D projects before we install services and begin to process clients. We must discontinue our practise of installing a program first, and then mounting an evaluation effort to see whether what has been built proves to have any merit. Finally, efficient development of innovative programs is more likely to occur when resources are marshalled and directed toward change within a well-organized and concentrated effort. One buys more development for a dollar when development is appropriately concentrated, than one can get when development efforts are engaged on a piece-meal basis and extended over a very long period of time.

Thus, continued pursuit of contemporary procedures of program evaluation will not only prove to be excessively costly in the long-run, but are also unlikely to produce operational services and systems with the efficiency and economy which are sought. A shift of the field of human services program development should be made toward an R&D strategy instead.

THE PROCESS OF INNOVATION

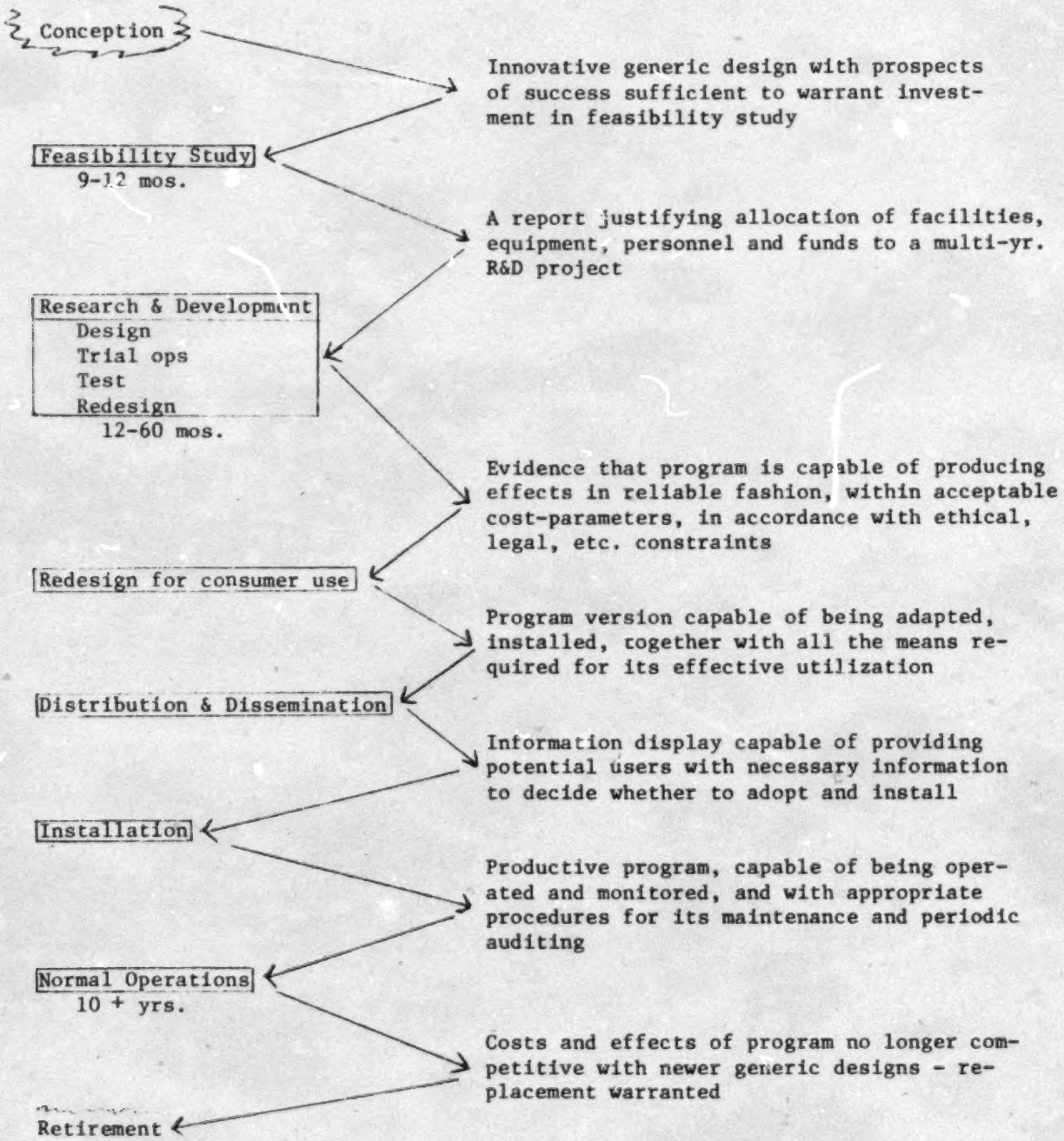
Conception
Innovative generic design with prospects of success sufficient to warrant investment in feasibility study
Feasibility Study
9-12 mos.
A report justifying allocation of facilities, equipment, personnel and funds to a multi-yr. R&D project
Research & Development
Design
Trial ops
Test
Redesign
12-60 mos.
Evidence that program is capable of producing effects in reliable fashion, within acceptable cost-parameters, in accordance with ethical, legal, etc. constraints
Redesign for consumer use
Program version capable of being adapted, installed, together with all the means required for its effective utilization
Distribution & Dissemination
Information display capable of providing potential users with necessary information to decide whether to adopt and install
Installation
Productive program, capable of being operated and monitored, and with appropriate procedures for its maintenance and periodic auditing
Normal Operations
10 + yrs.
Costs and effects of program no longer competitive with newer generic designs - replacement warranted
Retirement

Figure. The innovation process as it is characteristically pursued in the majority of applied contexts. The place of Research and Development in the process is represented in the context of a program life-cycle, arrayed along a time-line.